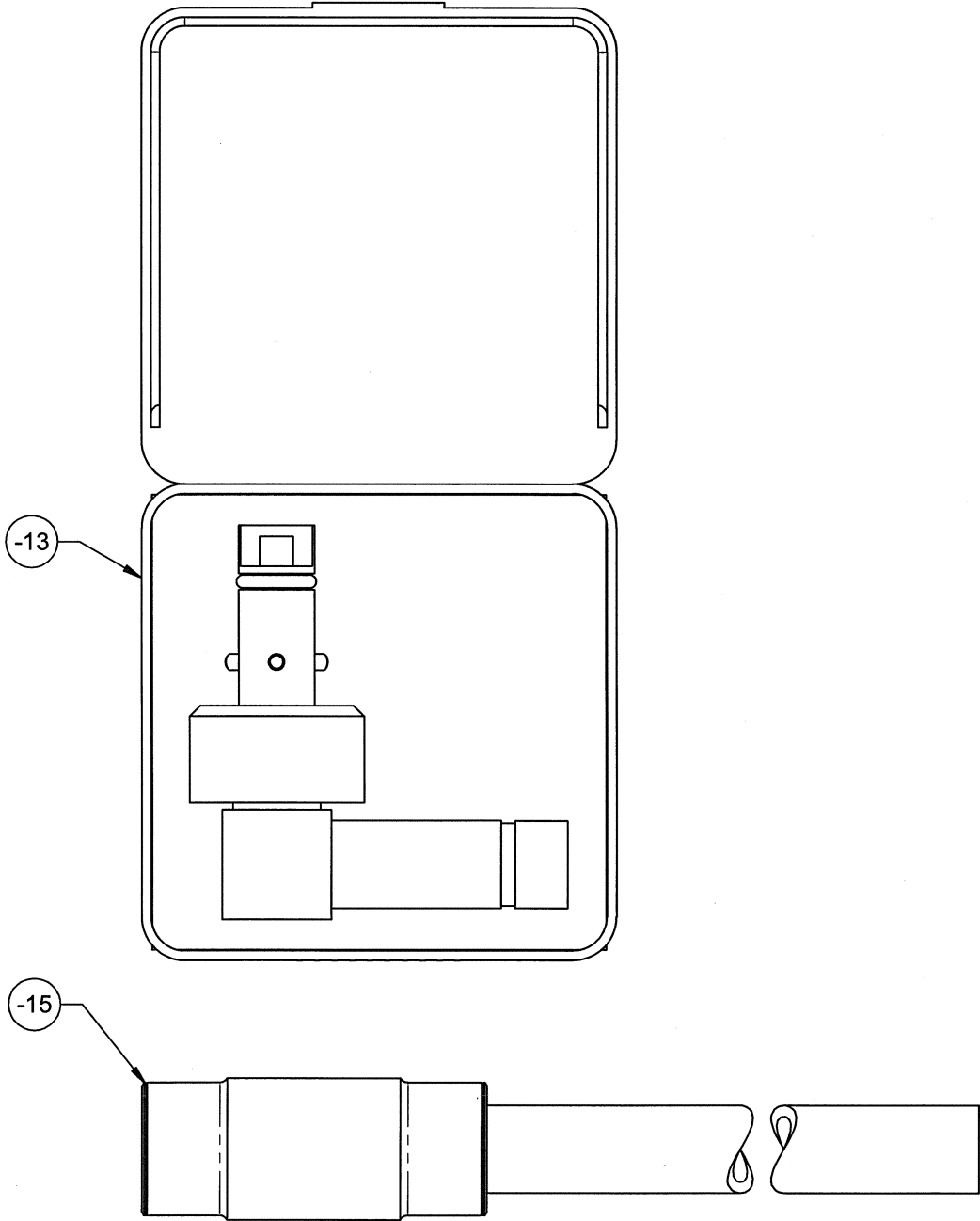


ITEM #	QTY	PART #	PART TITLE
-13	1	RB DB3188L-13	TRANSMISSION DRAIN TOOL PACKAGING ASSY
-15	1	RB DB3188L-15	TRANSMISSION DRAIN TOOL HOSE ASSEMBLY

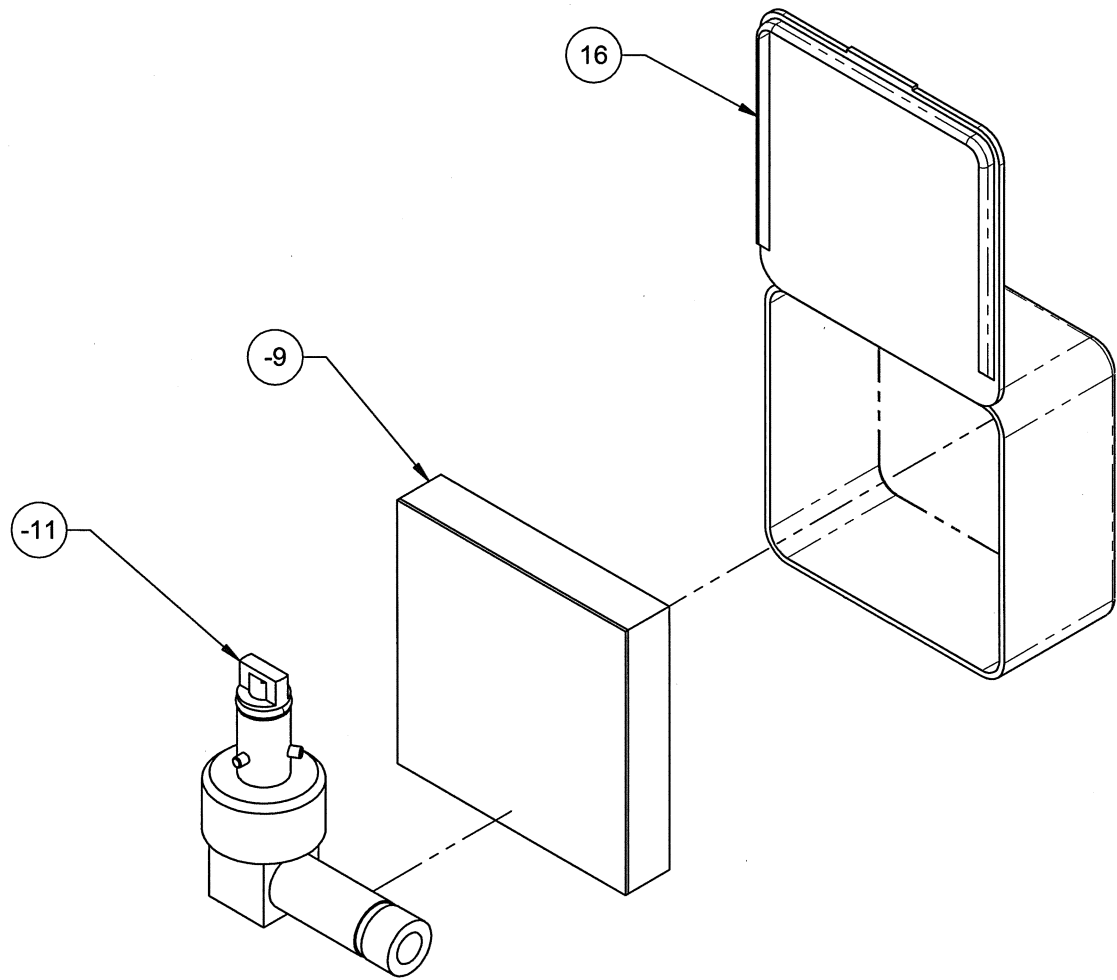


**RB DB3188L TRANSMISSION DRAIN TOOL**

- NOTES:  
1) MATERIAL: N/A  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES UNLESS OTHERWISE NOTED  
6) IDENTIFICATION: N/A  
7) PLACE ITEM -13 COILED INTO A TIGHT FITTING SEALED PLASTIC BAG WITH ITEM -15

J	SEE PREVIOUS REVISION FOR MORE INFORMATION UPDATED DRAWING TEMPLATE ADDED ITEMS -9, -11, -13 & -15 -11 ITEM 17 P/N WAS WA 84 IS Smalley#WH-84. ITEM 20 PN WAS McMaster#90145A443 IS McMaster#98380A433 -1 DIM WAS Ø0.0937/Ø0.0933 ▽0.21 IS Ø0.0938 -0.0002/-0.0008 ▽0.22 -3 ADDED DIM 0.03 X 45.0° CMF -5 REMOVED CHAMFER 12X 0.06 X 45°. DIM WAS 0.625 IS 0.63. DIM WAS 1.66 IS 1.663. CHANGED T/N ENGRAVING LOCATION		19-614	MBB
	REV.	DESCRIPTION	ECN #	BY
DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA		
DRAWN	MBB			
CHECKED	KPT	TOOL PART # <b>RB DB3188L</b>		
MFG. APPR.	DP	REV. J SHEET 1 OF 8		
APPROVED	WY	TITLE <b>TRANSMISSION DRAIN TOOL</b>		
DATE <b>2/27/2019</b>		SCALE NTS		
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ITEM #	QTY	PART #	PART TITLE
-9	1	RB DB3188L-9	DRIPPING FOAM PAD
-11	1	RB DB3188L-11	TRANSMISSION DRAIN TOOL ASSEMBLY
16	1	Flex-A-Top#FT-33 OR EQUIV.	CLEAR POLYPROPYLENE BOX 2.72" X 2.72" WD. X 1.34" HT.

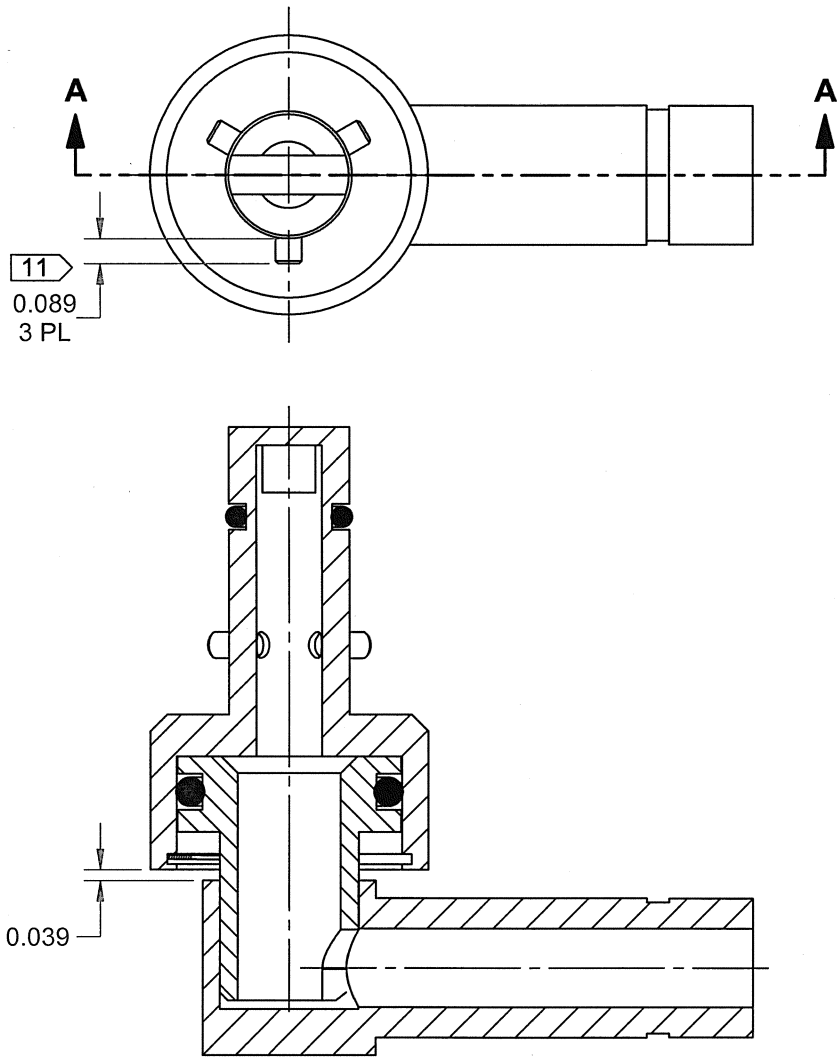


**RB DB3188L-13 TRANSMISSION DRAIN TOOL PACKAGING ASSY**

NOTES:  
1) MATERIAL: N/A  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES UNLESS OTHERWISE NOTED  
6) IDENTIFICATION: N/A  
7) ASSEMBLE AS SHOWN

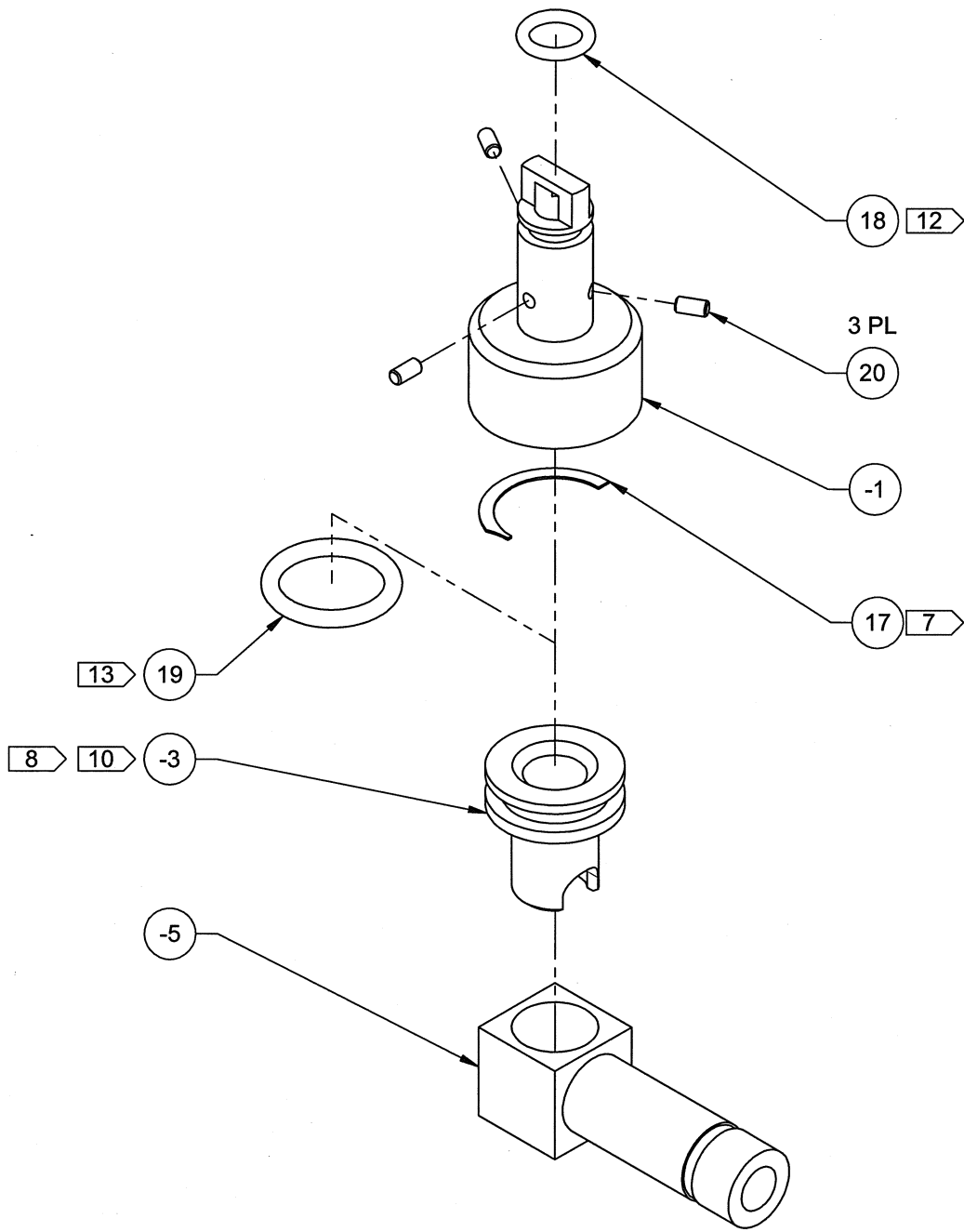
DESIGN	MBB	<b>DART AEROSPACE LTD</b>	
DRAWN	MBB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	TOOL PART #	REV. J
MFG. APPR.	DP	RB DB3188L	SHEET 2 OF 8
APPROVED	VM	TITLE	SCALE
DATE 2/27/2019		TRANSMISSION DRAIN TOOL	NTS
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ITEM #	QTY	PART #	PART TITLE
-1	1	RB DB3188L-1	QUILL
-3	1	RB DB3188L-3	SWIVEL
-5	1	RB DB3188L-5	HOSE END
17	1	Smalley#WH-84 OR EQUIV.	INTERNAL RING 0.889" OD. X 0.031" THK.
18	1	McMaster#9263K642 OR EQUIV.	VITON O-RING 7.8 mm ID. X 11.6 mm OD. X 1.9 mm WD.
19	1	McMaster#9464K27 OR EQUIV.	VITON O-RING 5/8" ID. X 13/16" OD. X 3/32" WD.
20	3	McMaster#98380A433 OR EQUIV.	416 SS DOWEL PIN 3/32" DIA. x 3/16" LG.



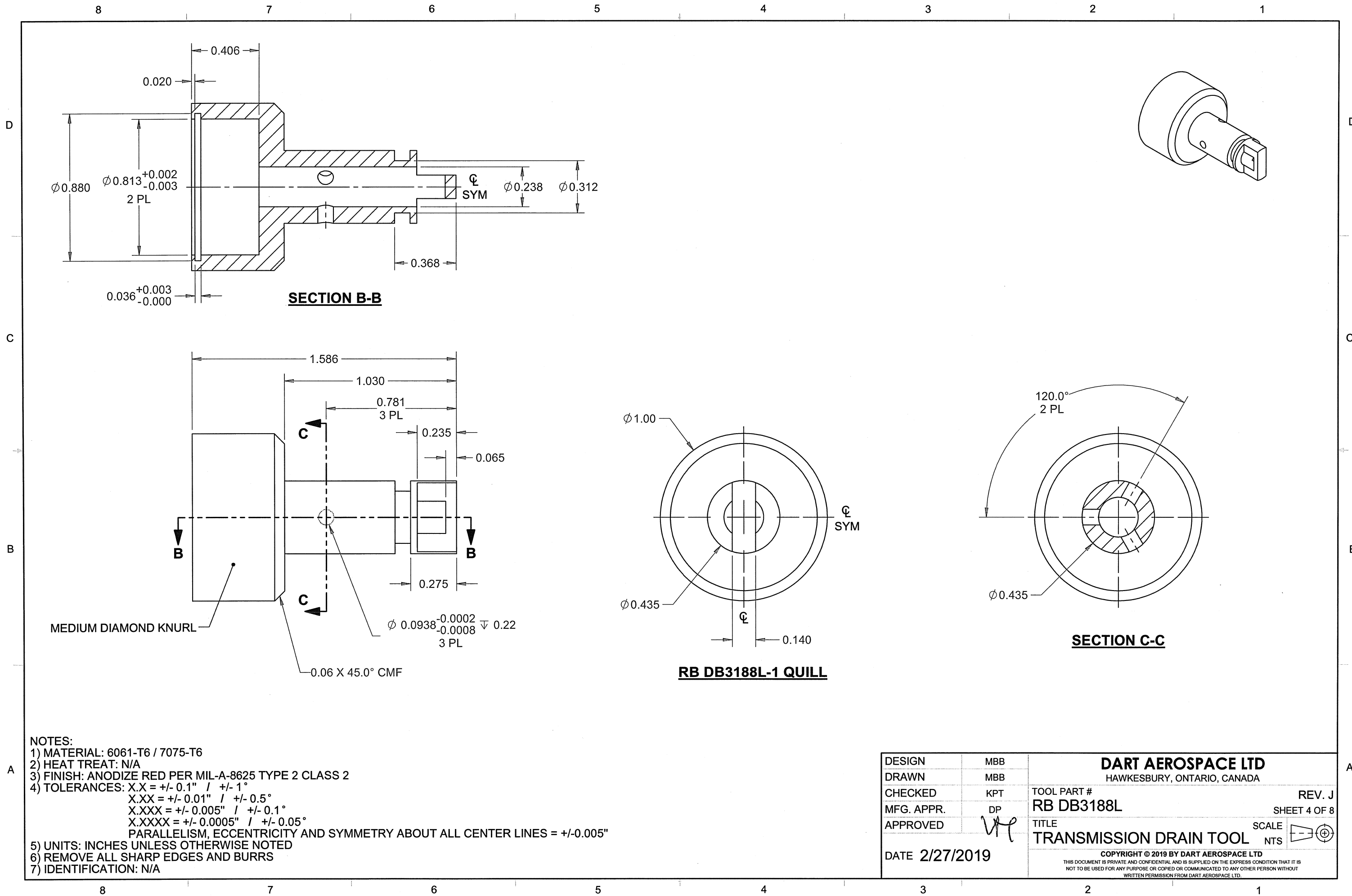
- NOTES:
- 1) MATERIAL: N/A
  - 2) HEAT TREAT: N/A
  - 3) FINISH: N/A
  - 4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"
  - 5) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 6) IDENTIFICATION: N/A
  - 7) ITEM 17 SHALL BE CUT IN HALF TO FIT
  - 8) WHEN PRESSING ITEM -3 INTO ITEM -5 ALIGN CUTOUT AS SHOWN
  - 9) ASSEMBLE AS SHOWN
  - 10) APPLY LOCTITE 620 OR EQUIVALENT ON MATING SURFACES THEN PRESS FIT ITEM -3 WITH ITEM -5 AND REMOVE EXCESS
  - 11) APPLY LOCTITE 620 OR EQUIVALENT ON MATING SURFACES THEN PRESS FIT ITEMS 20 WITH ITEM -1 AND REMOVE EXCESS
  - 12) APPLY MOLYKOTE 55 OR EQUIVALENT ON ITEM 18 THEN ASSEMBLE WITH ITEM -1 AND REMOVE EXCESS
  - 13) APPLY MOLYKOTE 55 OR EQUIVALENT ON ITEM 19 THEN ASSEMBLE WITH ITEM -3 AND REMOVE EXCESS

**SECTION A-A**



**RB DB3188L-11 TRANSMISSION DRAIN TOOL ASSEMBLY**

DESIGN	MBB	<b>DART AEROSPACE LTD</b>	
DRAWN	MBB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	TOOL PART #	REV. J
MFG. APPR.	DP	<b>RB DB3188L</b>	SHEET 3 OF 8
APPROVED	<i>VH</i>	TITLE	SCALE
DATE <b>2/27/2019</b>		<b>TRANSMISSION DRAIN TOOL</b>	NTS
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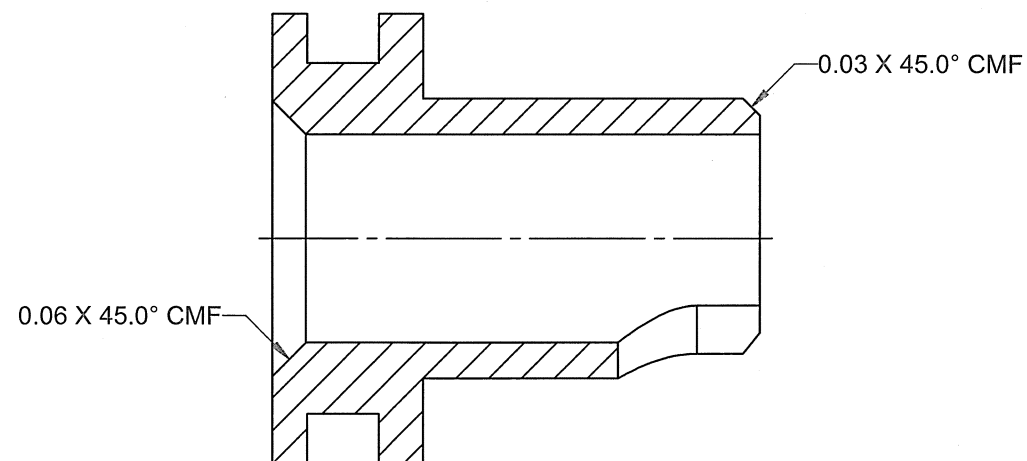
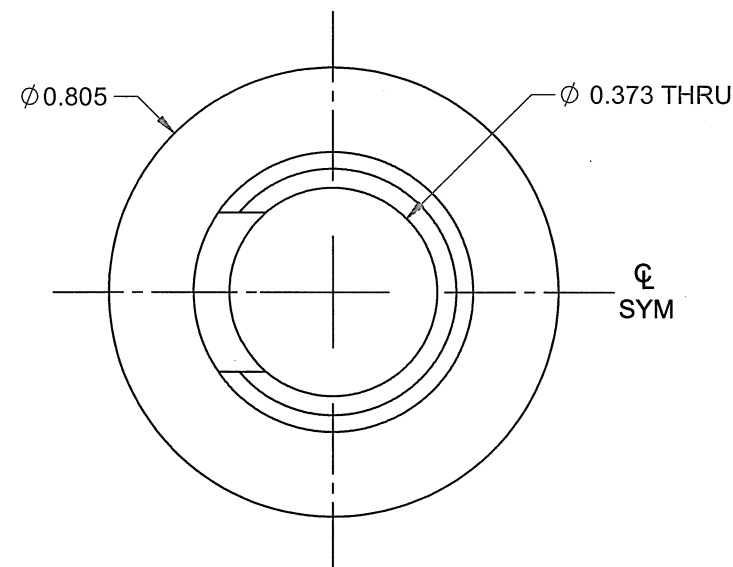
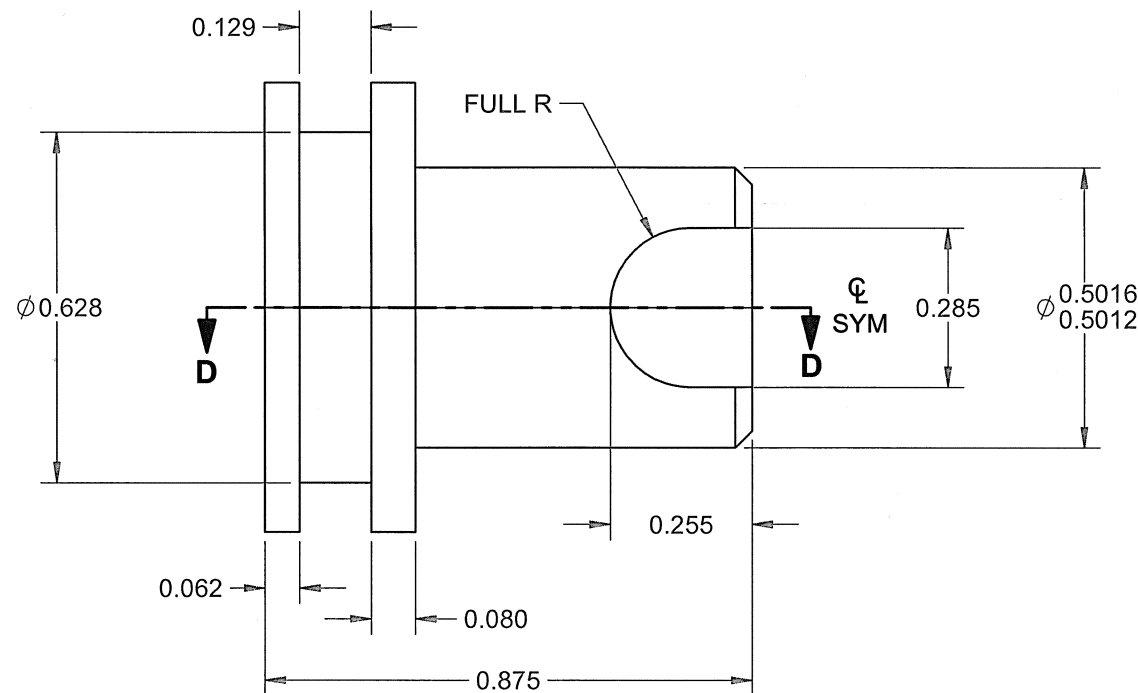
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**SECTION D-D****RB DB3188L-3 SWIVEL****NOTES:**

- 1) MATERIAL: 6061-T6 / 7075-T6
- 2) HEAT TREAT: N/A
- 3) FINISH: ANODIZE RED PER MIL-A-8625 TYPE 2 CLASS 2
- 4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/- 0.005"
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) REMOVE ALL SHARP EDGES AND BURRS
- 7) IDENTIFICATION: N/A

DESIGN	MBB	<b>DART AEROSPACE LTD</b>	
DRAWN	MBB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	TOOL PART #	REV. J
MFG. APPR.	DP	RB DB3188L	SHEET 5 OF 8
APPROVED	VHP	TITLE	SCALE
DATE 2/27/2019		TRANSMISSION DRAIN TOOL	NTS
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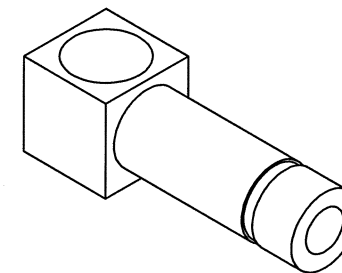
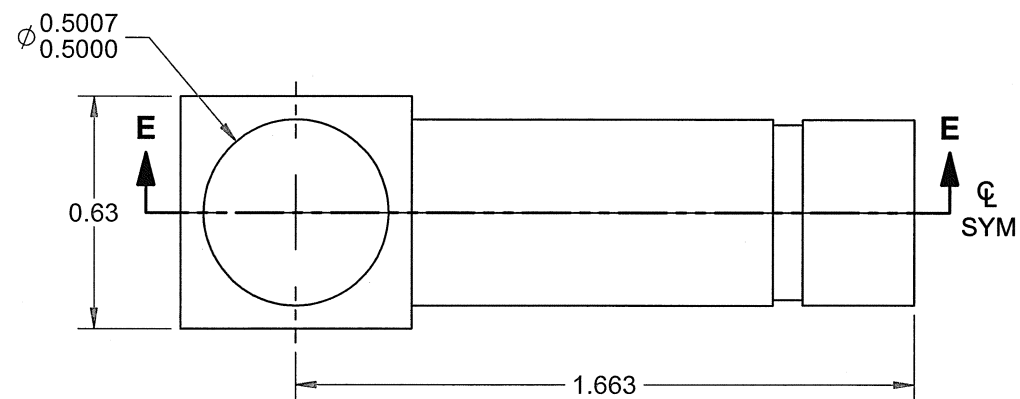
8 7 6 5 4 3 2 1

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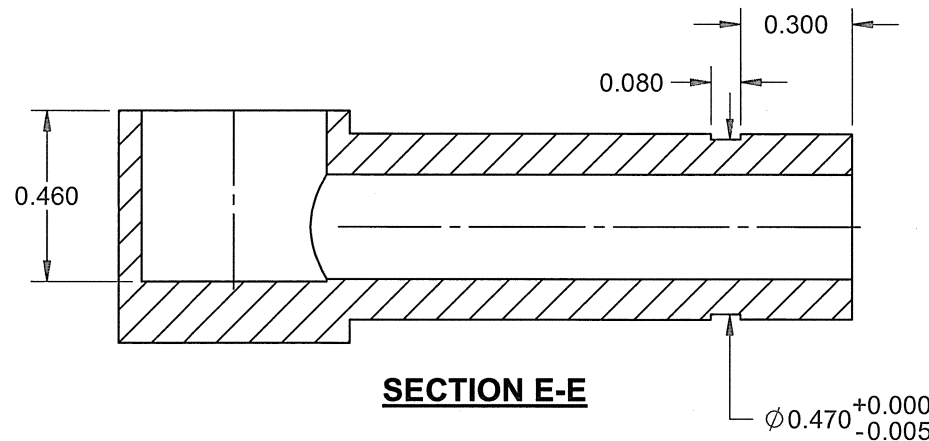
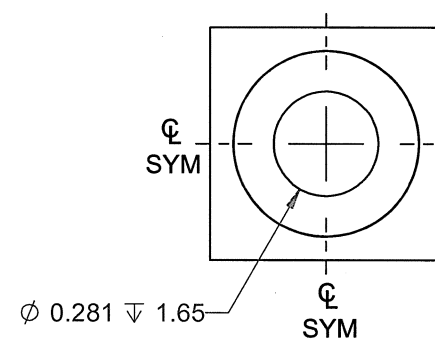
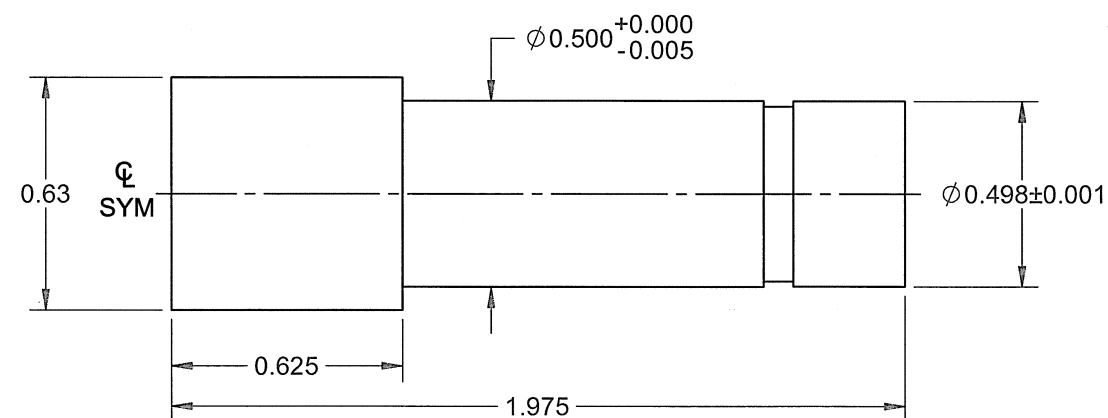
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RB DB3188L-13

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**SECTION E-E**

**RB DB3188L-5 HOSE END**

NOTES:

- 1) MATERIAL: 6061-T6 / 7075-T6
- 2) HEAT TREAT: N/A
- 3) FINISH: ANODIZE RED PER MIL-A-8625 TYPE 2 CLASS 2
- 4) TOLERANCES: X.X =  $\pm 0.1$ " /  $\pm 1^\circ$   
X.XX =  $\pm 0.01$ " /  $\pm 0.5^\circ$   
X.XXX =  $\pm 0.005$ " /  $\pm 0.1^\circ$   
X.XXXX =  $\pm 0.0005$ " /  $\pm 0.05^\circ$   
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES =  $\pm 0.005$ "
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) REMOVE ALL SHARP EDGES AND BURRS
- 7) IDENTIFICATION: MACHINE ENGRAVE OR DOT MARK T/N AS SHOWN

DESIGN	MBB	<b>DART AEROSPACE LTD</b>	
DRAWN	MBB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	TOOL PART #	REV. J
MFG. APPR.	DP	RB DB3188L	SHEET 6 OF 8
APPROVED	VP	TITLE	SCALE
DATE 2/27/2019		TRANSMISSION DRAIN TOOL	NTS
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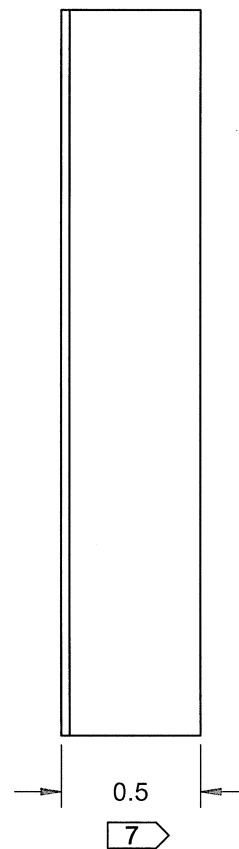
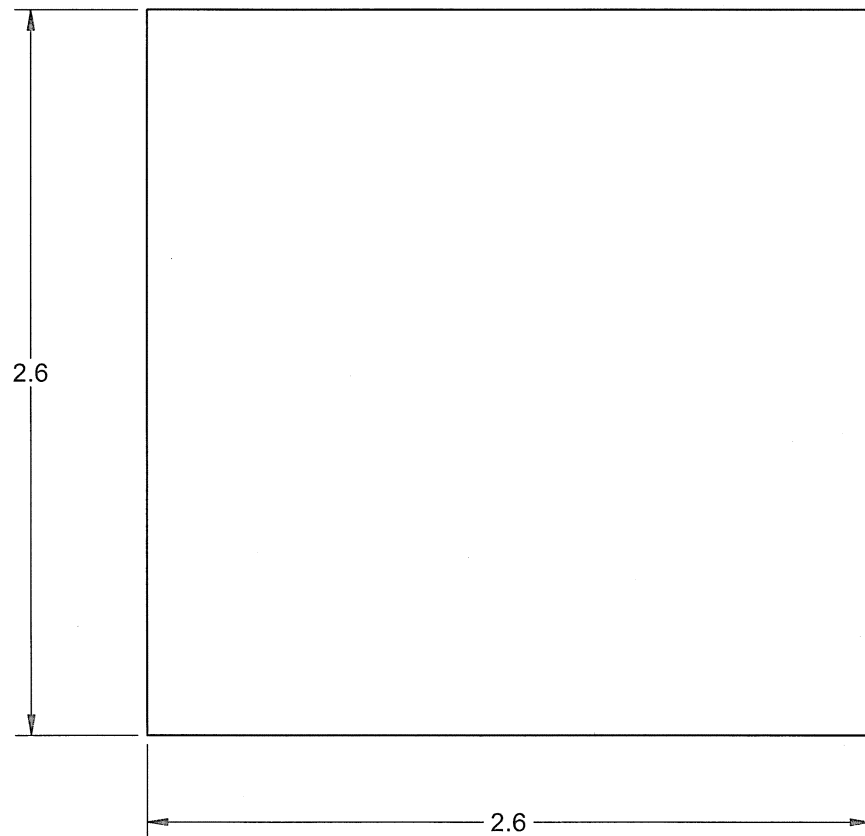
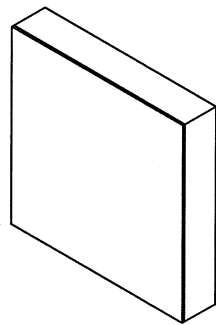
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**RB DB3188L-9 DRIPPING FOAM PAD**

**NOTES:**

1) MATERIAL: NewPig#PAD210 OR EQUIV.

2) HEAT TREAT: N/A

3) FINISH: N/A

4) TOLERANCES: X.X = +/- 0.1" / +/- 1°

X.XX = +/- 0.01" / +/- 0.5°

X.XXX = +/- 0.005" / +/- 0.1°

X.XXXX = +/- 0.0005" / +/- 0.05°

PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"

5) UNITS: INCHES UNLESS OTHERWISE NOTED

6) IDENTIFICATION: N/A

7) CUT FOAM AT DIMENSION SHOWN AND KEEP POLY-BACKED SIDE

DESIGN	MBB	<b>DART AEROSPACE LTD</b>	
DRAWN	MBB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	TOOL PART #	REV. J
MFG. APPR.	DP	RB DB3188L	SHEET 7 OF 8
APPROVED	VP	TITLE	SCALE
DATE 2/27/2019		TRANSMISSION DRAIN TOOL	NTS
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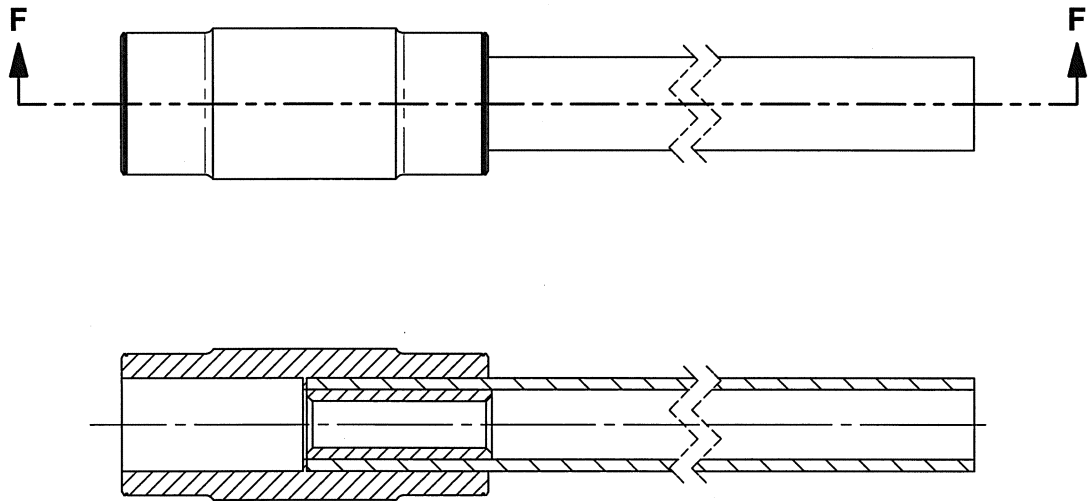
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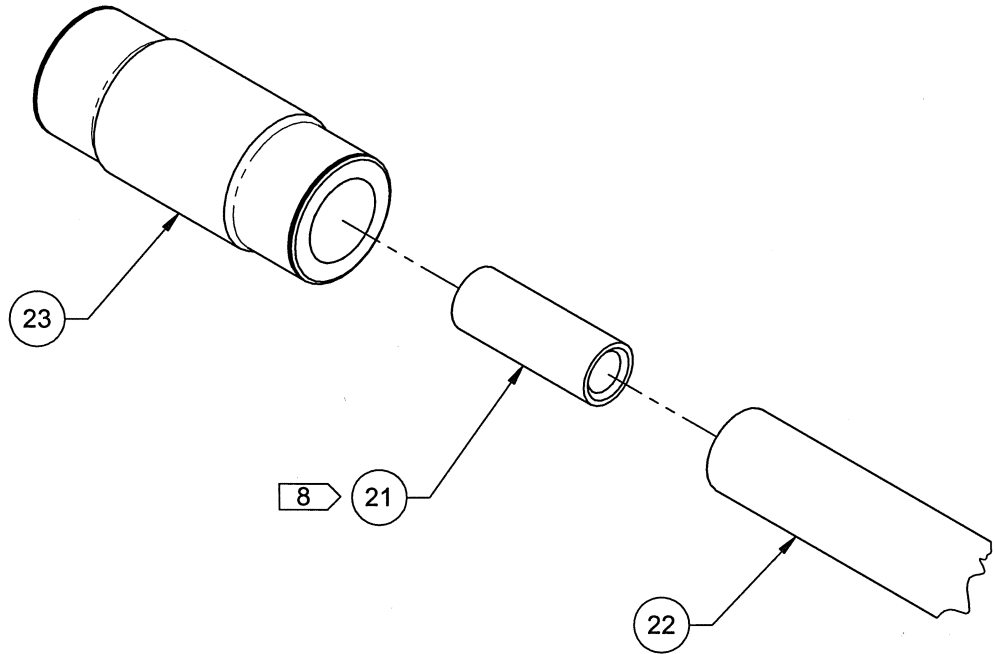
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ITEM #	QTY	PART #	PART TITLE
21	1	DTSP10001	SLEEVE
22	1	Kuri-Tec#K010-0608 OR EQUIV.	CLEAR PVC TUBING 1/2" OD. X 3/8" ID. X 72" LG.
23	1	McMaster#51495K116 OR EQUIV.	NICKEL-PLATED BRASS PUSH-TO-CONNECT 1/2" OD. TUBE FITTING



SECTION F-F



RB DB3188L-15 TRANSMISSION DRAIN TOOL HOSE ASSEMBLY

NOTES:  
1) MATERIAL: N/A  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES UNLESS OTHERWISE NOTED  
6) IDENTIFICATION: N/A  
7) ASSEMBLE AS SHOWN  
8) INSTALL ITEM 21 INTO ONE END OF ITEM 22 UNTIL FLUSH

DESIGN	MBB	<b>DART AEROSPACE LTD</b>	
DRAWN	MBB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	TOOL PART #	REV. J
MFG. APPR.	DP	RB DB3188L	SHEET 8 OF 8
APPROVED	VH	TITLE	SCALE
DATE 2/27/2019		TRANSMISSION DRAIN TOOL	NTS
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